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Effect of Yoga and Music in Relieving Pain among Patients with Cancer.

L Cresenta Shakila Motha¹, R Nalini², R Alamelu^{2*}, and R Amudha².

¹Faculty Member, Department of Training & Placement, SASTRA University, Thanjavur, Tamil Nadu, India.

²Faculty Member, School of Management, SASTRA University, Thanjavur, Tamil Nadu, India.

ABSTRACT

The main objective of the study was to find out the association between the post-level of pain among patients with cancer receiving yoga and music therapy. The accessible population comprises of sixty patients having cancer, pain treatment and admitted in a private cancer hospital in Trichy district. Of the sixty patients, thirty were placed in experimental group I with yoga therapy and the rest thirty were placed in experimental group II with music therapy. A diagnosis of cancer is one of the most dreaded and serious life events that results in stress in individuals and families. It disrupts social, physical and psychological well-being and exhibiting a wide range of emotions of negative emotions starting from mourning and guilt, embarrassment, fear and shame, anger and sadness, feeling of hopelessness and reluctance to undergo treatment. The results of the present study also highlight that yoga and music play a significant part in relieving pain and in coping with the disease condition. Yoga and Music therapy from the patient's point of view and experience has been found to be receptive and active with regard to intervention to alleviate stress and fear of being hospitalized and ultimately improve the quality of life of the person affected and overall wellbeing.

Keywords: Yoga, Music, cancer pain, interventions and patients

**Corresponding author*

INTRODUCTION

Pain is universal, but cancer pain is particularly vicious. Patients with cancer have a specific behavior due to the presence of severe pain because of the disease and the fear of facing pain in the form of treatments or intensity of the progression of disease. The agony of pain is transmitted without words since this pain alters the persons well being, his or her hopes for the life and the kind of role to be played in family, social and financial obligations.

Patients with cancer experience pain which due to main reasons. It could be due to physical and psychological reasons. Physical causes could be direct involvement of tumor, diagnostic procedures, measure of therapy undertaken and therefore the side effects corresponding to the treatment could be varied reasons for pain. Psychological pain includes the very suffering from this dreaded condition and the associated trauma it instills in the individual depending on ones position in the family and the roles the individual performs. However be the source of pain, the very word pain inflicts suffering which affects the quality of life, interferes with the day to day routine with regard to reduced physical and social activity, reduced appetite and sleep disturbance associated with feelings of burden and worthlessness.

Cancer pain has a multidimensional phenomenon having variety of reason and significant problem for the patient and the care takers. Pain is found to be an important predictor of quality of life and the limitations of physical performance and adjustments. Fear of unrelieved pain is a concern for individuals with cancer, their family and friends. The Pain ladder management of World Health Organization (WHO) is the most widely agreed and utilized pain management strategy adopted with cancer patients. In spite of the undesirable effects which range from local to general opioids continue to remain the base for management of cancer pain. The opioids are considered to be the best choice of treatment and highly recommended drug therapy.

Yoga is an ancient science which has stood the test of time in terms of scientific investigation. There is growing evidence that the ancient practice of yoga is good for patients with cancer, even during treatment. The yoga programs are a little more gentle and that patients with cancer feel that they are capable of doing those movements.

The very diagnosis of cancer is feared and poses threat to one's life events that results in stress to individual member and their families at large. Cancer affects the physical, social, economic, emotional and psychological well-being of the affected individual and exhibits in a wide range of negative emotions starting from mourning and guilt, embarrassment, fear and shame, anger and sadness, feeling of hopelessness and reluctance to undergo treatment. Music from time immemorial has been considered to have healing power and this has been documented worldwide in all cultures are the globe.

Music therapy particularly used with patients with cancer helps them to cope with pain as well as overcome their negative emotions. Music is an art that enables people to get rid of their tensions, worries, sorrow and anxiety. It has a calming and soothing effect for the benefit patients with cancer. Music has a positive effect on the spiritual, emotional, social and physical well being of the individuals and therefore in this study an attempt has been made to study the effect of yoga and music in alleviating pain and distress among patients with cancer.

Significance of the Study

The burden of cancer and cancer pain has drastically increased over the years making it a global concern. It had been estimated by GLOBOCAN (2008) that about 12.7 million cases of cancer and nearly 7.6 million deaths were likely to have occurred in 2010 of which the majority had occurred in the economically developing countries. This clearly indicates the intensity of the problem with reference to developing nations.[1]

The World Health Organization and International Agency for Research on Cancer supports the Union for International Cancer Control every year on the 4th of February to identify and promote various ways to deal with global concern for cancer. October 2008 to October 2009 had been announced globally as the year of cancer by the International Association for study of cancer pain. The global cancer burden is expected to double by 2030. Within the coming two decades the cancer cases per year will reach 24 million because of

growth in population and ageing factor. It is also estimated that 50% of cancer cases could be prevented due to the awareness among the public and government.[2]

Survivors of cancer experience varied difficulties during the course of the illness as well as during the treatment and after completion as well. The pain associated with it as well as effect of treatment and the side effects persist even after the cure. Individual with cancer pain get treated in various ways starting of drug therapy, health education, counseling for psychological issues, rehabilitation and physical therapy, surgery and specialized care and at times behavioral interventions to reduce pain and complications thereby improving the individual's quality of life.

The experience of pain is a universal phenomenon and is an essential factor in delineating whether an individual enjoys safety or whether an individual is in the threat of danger. The pain experienced by patients with cancer could easily become a focus to their very existence. Pain due to cancer can have a permeating effect and bring down the individual's quality of life not permitting the individual to enjoy the fruits of his living and the human interaction. Pain consumes liveliness and threatens the individual's very desire for existence. The physical, psychological and social connotation of pain further aggravates the vicious pain cycle.

Complementary therapies have been found to play tremendous role in the reduction of pain which is non invasive, less expensive and cost effective in controlling symptoms and improving value of life and have been assessed by patients on their own. Research studies have found that yoga therapy has contributed to the reduction physical and emotional symptoms which has permitted cancer survivors to help and manage their own care. (Hematol oncol clin North Am 2008 Apr Villi, Zinks) [3]

Objectives of the Study

The main objective of the study was to find out the association between the post-level of pain among patients with cancer receiving yoga and music therapy. For this purpose the level of pain among patients and effectiveness of yoga and music therapy were assessed among patients with cancer. The results of this intervention could be incorporated as one of the interventions in reducing the level of pain among patients with cancer.

Review of Literature

Fouladbakhsh JM, Stommel M et al., (2010) has revealed that oncology nurses should understand the merits of incorporating self-care complementary and alternative medicine practices in association to gender into the symptom managing strategy for cancer survivors.[4] Ulger O, Yagli NV et al., (2010) have found that yoga program have a significant effect on the reduction of pain levels and increased the quality of life for patients with breast cancer.[5] Kvillemo P, Branstrom R et al., (2011) described the observed effects of pain-reduction training by patients with cancer taking part in a yoga program and they conveyed the favourable effects as enhanced calmness and sleep quality with added energy and lower bodily pain.[6] Mishra SL, Scherer RW et al.,(2012) have verified the exercise interventions with cancer patients and found that patients recognized less pain after treatment with better measures of exercises.[7] Galantino ML, Greene L, Daniels L et. al., (2012) suggested that yoga had a positive effect on cognition during and after chemotherapy treatment and women agreed that their quality of life has improved.[8] Zernicke KA, Campbell TS et. al., (2013) studied that high stress intensified cancer symptom and patients felt continued distress even after the primary cancer treatments. Mindfulness-Based Cancer Recovery (MBCR) programs had positive impact on pain relieving for cancer patients.[9] Pawuk LG, Schumacher JE et al., (2010) conveyed that patients with lung cancer respire effortlessly and decreases the necessity for pain medication after joining in music-focused relaxation.[10] Nguyen TN, Nilsson S et al., (2010) have found lower pain scores and heart and respiratory rates in music group among patients with leukemia.[11] Mahon EM, Mahon SM et al., (2011) have revealed that music therapy decreases patient stress and nervousness, relieve pain and nausea, provide distraction and lessen dejection.[12] Li X.M, Yan H, Zhou KN et al., (2011) found that music therapy has constructive effects of lessening pain in breast cancer patients following radical mastectomy.[13] Elkins G, Fisher W et al., (2010) has described that yoga and music practices upgraded the quality of life and declined chemotherapy side effects for cancer patients.[14] According to the study conducted by Pub med (2013), it was found that the more the yoga breathing resulted in substantial progresses as consequence measures.[15]

The conceptual framework deals with the inter-related concepts that are assessed together for a study in the abstract, logical structure that enables the researcher to link the findings to para- medical body of knowledge. It is developed from the existing theory of interests and proposing relationship among them. The model gives direction for planning research design, data collection and interpretation of findings. (Polit and Beck 2006).[16]

The present study aims at describing the effectiveness of yoga therapy and music therapy in reducing pain level among cancer patients. The framework for the study is based on “Roy’s adaptation model” (1984). Roy’s model rests on the concept of adaptation of the person. The concepts of care of the person, health and environment, outcomes of treatment are all interlinked to the main concept. The constant environmental stimulus experienced by the person evokes a response and adaptation is made accordingly. The response elicited could either be an adaptive or an ineffective reaction. Adaptive re enhances integrity and motivates the person to achieve the goal of adaptable living which is needed for the survival of the cancer patient. Improvement in pain, quality of life transforms the environment and ineffective response fails to achieve or threatens the goals of adaptation.[17]

RESEARCH DESIGN

The research design used in the study was true experimental design- pre-test and post-test design.

Table 1: Experimental Design

| Groups | Pre-test | Intervention | Post-test | | |
|-----------------------|----------|-------------------|-----------|----|----|
| | | | 1 | 2 | 3 |
| Experimental Group-I | O1 | X1(Yoga therapy) | O2 | O3 | O4 |
| Experimental Group-II | O1 | X2(Music therapy) | O2 | O3 | O4 |

The accessible population comprises of sixty patients having cancer, pain treatment and admitted in a private cancer hospital in Trichy district. Of the sixty patients, thirty were placed in experimental group I with yoga therapy and the rest thirty were placed in experimental group II with music therapy. The demographic variables were assessed by interview by using numerical pain assessment scale. Individually yoga was demonstrated to experimental group I for thirty minutes on the first day and it was supervised on third, fifth and seventh day. Recorded audio veena, instrumental music by I pod was introduced to experimental group II for fifteen minutes and the effect was assessed on third, fifth and seventh day.

Table 2: Experimental Design and level of pain

| Level of Pain (Scores) | Experimental Group-I | | | | Experimental Group-II | | | |
|------------------------|----------------------|------------|-----------|------------|-----------------------|------------|-----------|------------|
| | Pre-test | | Post-test | | Pre-test | | Post-test | |
| | Number | % to total | Number | % to total | Number | % to total | Number | % to total |
| None (0) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mild (1-3) | 0 | 0 | 3 | 30.00 | 0 | 0 | 0 | 0 |
| Moderate (4-6) | 5 | 16.67 | 27 | 70.00 | 3 | 10.00 | 4 | 13.33 |
| Severe (7-10) | 25 | 83.33 | 0 | 0 | 27 | 90.00 | 26 | 86.67 |
| Total | 30 | 100 | 30 | 100 | 30 | 100 | 30 | 100 |

Source: Primary data

The above table depicts, the pre-test majority 25 (83.33%) had severe cancer pain and 5 (16.67%) had moderate cancer pain. In post-test majority 27 (70%) had moderate cancer pain and 3 (30%) had mild cancer pain for experimental group I which was given yoga exercise to reduce pain. The beneficial effects of yoga have been highlighted in many studies conducted which has revealed that it has improved the physical and emotional well being of individual who have practiced it. In a trial study conducted by Cohen and et al (2004) with cancer patients adopting Tibetan yoga, the intervention included three methods –mindfulness, controlled breathing exercises and visualization with simple postures on a seven weekly session revealed that the participants experienced significant improvement in their sleep patterns like falling asleep with any difficulty,

sleeping for longer time and reduced intake of medicines to get sleep. The study also found that there was no intervention with regard fatigue reduction, alleviation of depressed mood and cancer pain reduction. [18]

The pre-test majority 27 (90%) had severe cancer pain and 3 (10%) had moderate cancer pain. In post-test majority 26 (86.67%) had severe cancer pain and 4 (13.33%) had moderate cancer pain for experimental group II where music was given as form of therapy to reduce pain. A negligible percentage of reduction of pain was observed with both the experimental groups. Music in the treatment of cancer patients consists of techniques for relaxation of muscles and imagery techniques to ease after effects of cancer treatment. Music as a therapy enables the patients to cope with symptoms of anxiety, pain, nauseated feeling, tension and depression.

FINDINGS AND DISCUSSION

Hypothesis No:1 Ho: There is no significant association between post test level of pain in patients with cancer receiving yoga therapy and demographic variables.

Table 3: Yoga therapy and demographic variables- Experimental Group I

| S.No | Particulars | Experimental Group I | | | | χ^2 Calculated value |
|------|-----------------------------------|----------------------|------------|------------|----------------|---------------------------|
| | | Number (30) | % to total | Mild (1-3) | Moderate (4-6) | |
| 1 | Age (years) | | | | | 1.082 Rejected |
| | 20-40 | 6 | 20.00 | 2 | 4 | |
| | 41-60 | 17 | 56.67 | 6 | 11 | |
| | 61-80 | 7 | 23.33 | 1 | 6 | |
| 2 | Gender | | | | | 1.074 Rejected |
| | Male | 7 | 23.33 | 1 | 6 | |
| | Female | 23 | 76.67 | 8 | 15 | |
| 3 | Duration of illness | | | | | 1.479 Rejected |
| | < 1year | 11 | 36.67 | 3 | 8 | |
| | 2-3 years | 13 | 43.33 | 3 | 10 | |
| | >3 years | 6 | 20.00 | 3 | 3 | |
| 4 | Purpose of admission | | | | | 0.635 Rejected |
| | Diagnostic | 6 | 20.00 | 1 | 5 | |
| | Chemotherapy | 6 | 20.00 | 2 | 4 | |
| | Radiation | 18 | 60.00 | 6 | 12 | |
| 5 | Type of exercise practiced | | | | | 1.627 Rejected |
| | Yoga | 6 | 20.00 | 2 | 4 | |
| | Active walking | 8 | 26.67 | 1 | 7 | |
| | None | 16 | 53.33 | 6 | 10 | |
| 6 | Type of music preferred | | | | | 1.429 Rejected |
| | Devotional | 8 | 26.67 | 2 | 6 | |
| | Plain instrumental music | 6 | 20.00 | 3 | 3 | |
| | Film songs | 16 | 53.33 | 4 | 12 | |
| 7 | Region affected | | | | | 8.901 Rejected |
| | Chest | 6 | 20.00 | 0 | 6 | |
| | Abdomen | 6 | 20.00 | 0 | 6 | |
| | Pelvic | 13 | 43.33 | 6 | 7 | |
| | Any other | 5 | 16.67 | 3 | 2 | |
| 8 | Area of residence | | | | | 0.026 Accepted |
| | Rural | 14 | 46.67 | 4 | 10 | |
| | Urban | 16 | 53.33 | 5 | 11 | |

Source: Primary data (@5% level of significance)

The findings propose that there is no significant relationship between area of residence and the level of cancer pain. The other demographic variables namely, age, gender, duration of illness, purpose of

admission, type of exercise practiced, type of music preferred, region affected by cancer has an influence over the level of cancer pain among the patients who are given music therapy. Many studies presented in the literature on yoga and music indicates that these therapies which are complimentary in nature is primarily introduced to relieve symptoms like anxiety and pain. In a study by Magill-Levreault (2001) it has been highlighted that music therapy reduces side effects of chemotherapy and radiation therapy and other aspects affected by them include relaxation, mood disturbances and improvement in the quality of life.[19]

Hypothesis No:2 Ho: There is no significant association between post test level of pain in patients with cancer receiving music therapy and demographic variables.

Table 4: Music therapy and demographic variables- Experimental Group II

| S.No | Particulars | Experimental Group II | | | | χ^2 Calculated value |
|----------|-----------------------------------|-----------------------|------------|----------------|---------------|---------------------------|
| | | Number (30) | % to total | Moderate (4-6) | Severe (7-10) | |
| 1 | Age (years) | | | | | |
| | 20-40 | 7 | 23.33 | 1 | 6 | 0.292 Rejected |
| | 41-60 | 11 | 36.67 | 1 | 6 | |
| | 61-80 | 12 | 40.00 | 2 | 10 | |
| 2 | Gender | | | | | |
| | Male | 9 | 30.00 | 1 | 8 | 0.055 Rejected |
| | Female | 21 | 70.00 | 3 | 18 | |
| 3 | Duration of illness | | | | | |
| | < 1year | 11 | 36.67 | 1 | 10 | 1.285 Rejected |
| | 2-3 years | 11 | 36.67 | 1 | 10 | |
| | >3 years | 8 | 26.66 | 2 | 6 | |
| 4 | Purpose of admission | | | | | |
| | Diagnostic | 8 | 26.67 | 1 | 7 | 0.021 Accepted |
| | Chemotherapy | 8 | 26.67 | 1 | 7 | |
| | Radiation | 14 | 46.67 | 2 | 12 | |
| 5 | Type of exercise practiced | | | | | |
| | Yoga | 5 | 16.67 | 1 | 4 | 0.233 Rejected |
| | Active walking | 8 | 26.67 | 1 | 7 | |
| | None | 17 | 56.66 | 2 | 15 | |
| 6 | Type of music preferred | | | | | |
| | Devotional | 8 | 26.67 | 2 | 6 | 1.411 Rejected |
| | Plain instrumental music | 8 | 26.67 | 1 | 7 | |
| | Film songs | 14 | 46.66 | 1 | 13 | |
| 7 | Region affected | | | | | |
| | Chest | 5 | 16.67 | 0 | 5 | 1.893 Rejected |
| | Abdomen | 9 | 30.00 | 2 | 7 | |
| | Pelvic | 13 | 43.33 | 2 | 11 | |
| | Any other | 3 | 10.00 | 0 | 3 | |
| 8 | Area of residence | | | | | |
| | Rural | 14 | 46.67 | 4 | 10 | 5.275 Rejected |
| | Urban | 16 | 53.33 | 0 | 16 | |

Source: Primary data (@5% level of significance)

The findings propose that there is no significant relationship between purpose of admission and the level of cancer pain. The other demographic variables namely, age, gender, duration of illness, area of residence, type of exercise practiced, type of music preferred, region affected by cancer has an influence over the level of cancer pain among the patients who are given music therapy.

Hypothesis No: 3 Ho: There exists no difference between the level of pain pre and post test for experimental group I

Hypothesis No: 4 Ho: There exists no difference between the level of pain pre and post test for experimental group II

Hypothesis No: 5 Ho: There exists no difference between the level of pain after test for experimental group I and II

Table 5: Comparison of mean pain score and standard deviation of pre-test and post-test among patients with cancer

| Experimental Group I | Maximum Score | Mean | Standard Deviation | Mean Difference | T [calculated Value] |
|---|---------------|------|--------------------|-----------------|----------------------|
| Pre-test | 10 | 7.63 | 0.96 | 3.40 | 22.802 |
| Post-test | 10 | 4.23 | 1.04 | | Rejected |
| Experimental Group II | Maximum Score | Mean | Standard Deviation | Mean Difference | T [calculated Value] |
| Pre-test | 10 | 7.63 | 0.89 | 0.20 | 2.693 |
| Post-test | 10 | 7.43 | 0.93 | | Rejected |
| Experimental Group I and II (Post- test) | | | | 3.2 | 12.531 Rejected |

Source: Primary data (@5% level of significance)

The calculated pre-test cancer pain mean score was 7.63 with standard deviation of 0.96 and the post-test cancer pain mean score was 4.23 with standard deviation of 1.04. The mean difference was 3.40 and calculated t value (22.802) was more than the level of significance. Hence hypothesis no: 3 is rejected and concluded that there exists difference between pre and post test for experimental group I.

The calculated pre-test cancer pain mean score was 7.63 with standard deviation of 0.89 and the post-test cancer pain mean score was 7.43 with standard deviation of 0.93. The mean difference was 0.20 and calculated t value (2.693) was more than the level of significance. Hence hypothesis no: 4 is rejected and concluded that there exists difference between pre and post test for experimental group II.

The mean difference was 3.2 and calculated t value (12.531) was more than the level of significance. Hence hypothesis no: 5 is rejected and concluded that there exists difference between post test for experimental group I and II. From the analysis it is revealed that yoga as well as music seemed to bring about change in the perception of pain and in their reduction of pain. The Centers for Disease Control and Prevention (CDC) has reported that Iyengar yoga has yielded positive results in reduction of pain, anxiety and in correcting of health problems in children. According to their report Iyengar yoga using asanas and breathing exercises facilitate awareness of mindfulness, enhance functioning of internal organs and bring about body-mind-spiritual well being in the individuals. It has also been reported that by teaching yoga lessons to children with cancer and impaired immune system the children have benefitted greatly.[20]

The American Music Therapy Association has highlighted that music as a therapy uses music to address emotional, physical, social, and cognitive needs of patients in all ages and abilities. Music therapy interventions are designed to promote wellbeing, managing stress, relieving pain, and enhancing expression of feelings, improvising memory, enabling communication, and promoting physical rehabilitation.[21] According to Pothoulaki M et.al.(2006) music therapy in cancer treatment and care focuses on both physiological and psychological needs which arises from the disease as well as from side-effects of cancer treatment.[22]

The findings of the study have shown implications in different branches of medical profession namely, nursing education, nursing administration and nursing research. Oncology clinical practice nurses have a favourable offer to educate in reducing the level of pain among patients with cancer. The study findings also showed that though the patients with cancer were unaware about yoga and music therapy and its benefits of reducing pain level among them in clinical settings, the health care provider played a vital role in educating these techniques to patients with cancer who suffer with pain. With emerging health care trends, nurses must know about the body mind therapy and the holistic approach of pain reduction, especially to the critically ill. Nurses need evidenced-based practice in managing the cancer patients who suffer from pain.

Nurse educators when planning and instructing nursing students should provide opportunities for students to gain the knowledge in teaching students the techniques of pain reduction. The study outlined the

significance of short term courses and in service education to equip nurses with current knowledge in body therapies like yoga and music. Nurse educator should check out suitable programme to educate the nurses and care takers of cancer patients on the importance of healthy and adequate training in yoga and music therapy practice. The nurse educator can make a practical situation for student nurses in training techniques of yoga and music to reduce cancer pain. With advanced technology and ever growing challenges of health care needs, the college and hospital administrators have a responsibility to provide nurses and nurse educators with continuing opportunities on relaxation techniques like yoga/music and its benefits, health promoting properties and its availability. This will enable the nurses to update their knowledge and acquire special skills in preparing and use of adequate and healthy pain management strategies. The nurse administrator can conduct programmes in various critically ill areas through which pain can be reduced and help to improve the quality of life of critically ill and the health care providers can use the knowledge in appropriate situations.

There is a need for intensive and extensive research in this area. It opens a big avenue for innovative methods of creating awareness, development of teaching materials and journals. Disseminate the findings and research through conferences and seminars. Promote the effective utilization of findings in reducing pain among cancer patients and other critically ill patients.

CONCLUSION

Experience of cancer triggers in numerable physical, psychological, social, familial and existential needs. Yoga and music as a form of complimentary treatment can address many of them by offering the individual a wide range of benefits. Both yoga and music therapy in cancer care concentrates on needs of individual patients which arises from the experience of disease condition, as well from the side effects of treatment. Thus we see that a wide range of yoga exercises and varied forms of music starting from very mild melodious songs to spiritual songs, cinema songs to jazz music have therapeutic effect in cancer care setting. Yoga and Music therapy from the patient's point of view and experience has been found to be receptive and active with regard to intervention to alleviate stress and fear of being hospitalized and ultimately improve the quality of life of the person affected and overall wellbeing.

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